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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/089,695	05/21/2002	Yukoh Hiei	0760-0350 P	5501

2292 7590 04/25/2007
BIRCH STEWART KOLASCH & BIRCH
PO BOX 747
FALLS CHURCH, VA 22040-0747

EXAMINER

HELMER, GEORGIA L

ART UNIT	PAPER NUMBER
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1638

SHORTENED STATUTORY PERIOD OF RESPONSE	NOTIFICATION DATE	DELIVERY MODE
3 MONTHS	04/25/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 04/25/2007.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary	Application No. 10/089,695	Applicant(s) HIEI ET'AL.	
	Examiner Georgia Helmer	Art Unit 1638	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 January 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-7,12,14,15,17,18,20,21,23 and 24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 3-7, 12, 14-15, 17-18, 20-21 and 23-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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Request for Continued Examination

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 30 January 2007 has been entered.

Status of the Claims

2. Claim 1 has been amended. Claims 2, 8-11, 13, 16, 19, 22 and 25 have been canceled. Claims 1, 3-7, 12, 14-15, 17-18, 20-21 and 23-24 are pending, and are examined in the instant action.
3. All rejections not addressed below have been withdrawn.
4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 102/103

5. Claims 1, 3-12, 14, 15, 17, 18, 20, 21, 23 and 24 remain rejected under 35 U.S.C. 102 (b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over by Hansen (WO 98/54961, published 10 December 1998), for reasons of record set forth in the Office Action mailed 21 September 2005, as well as those set forth below.

Applicant's invention is a method of "promoting efficiency" of gene transfer via *Agrobacterium* to plant cells /tissues, comprising the steps of heating and centrifuging the plant cells, wherein the contact between the plant cells and *Agrobacterium* occurs after or while heating and/or centrifugation. The field of the invention is plant molecular biology and plant transformation.

Applicant traverses (Response of 30 January 2007, p.5, 3rd ¶) that those "skilled in the art do not carry out centrifugation" when using immature maize embryos or type I maize callus (Response, p. 6, 3rd ¶), saying further "[a]s is common knowledge to one of ordinary skill in the art, the immature embryos and type I callus [of maize] are not centrifuged." Applicant presents "proof" of this, referring to Frame et al, 2006, and Zhao, 2006 (Exhibits A and B), concluding these "references disclose experimental protocols regarding the manipulation of these type of tissues. In contrast to the Examiner's contentions, these references that are standard texts in the field do not disclose the use of centrifugation at any point in the transformation process. This is because centrifugation is not

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necessary, and not because the description of this step is omitted.” (Response, ¶ bridging p. 6 and p. 7).

Applicant's traversal is unpersuasive. Applicant's cited “standard texts in the field” references are 2006 publications. The Hansen prior art reference was published in 1998. Therefore, even if Applicant's two cited references were representative of 2006, they are certainly not representative of the state of the art eight years earlier in 1998. Technology changes vast amounts in eight years in the field of biotechnology. The state of the art in 2006 is not representative of the state of the art in 1998.

Applicant traverses primarily that the amended claims are drawn to the method wherein the centrifugal acceleration is 1000G to 150,000G, that even if Hansen centrifuged the maize tissues, Hansen does not employ a centrifugal acceleration as large as 1000G. Such centrifugation would be contrary to logic” (Response, p. 7, ¶ 1), saying “even when separating protoplasts having a size of several tens of micrometers, the centrifugal acceleration used is only about 100G”, citing Shillito et al, 1994 and Indra, 1991. “[T]herefore, the conditions are not identical. “

Applicant's traversal is unpersuasive. Applicant's reference to protocols for manipulation of plant protoplasts and saying that “even when separating protoplasts having a size of several tens of micrometers, the centrifugal acceleration used is only about 100G”, is not analogous or on point. Plant protoplasts are artificial produced from plant cells by enzymatically removing the plant cell wall (see Online Medical Dictionary print-out, 4/15/2007,

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//cancerweb.incl.ac.uk/cgi-binary/omd). Plant protoplasts are known to be very fragile and exceedingly sensitive to external stresses. Accordingly, conditions for manipulation of plant protoplasts are not representative of the state of the art for plant tissues in general, which is the case in the instant application. Therefore, the use of a low centrifugal acceleration of 100G for plant protoplasts is necessitated by their special structural and anatomical conditions only, and not by the general state of the art.

Applicant traverses primarily that Hansen "actually teaches away from the presently claimed invention because method commonly used in the art did not use centrifugation at all. Even if one of ordinary skill in the art did use centrifugation, it would be at a low force of 100G." (Response, p. 7, final ¶)

Applicant's traversal is unpersuasive. As set forth above, Applicant's state of the art references are relevant only the year 2006 and not to the time of 1998, Hansen's publication date. Applicant's 100G centrifugal acceleration is not relevant to the "normal maize tissue and embryos"; as discussed above.

Furthermore, a routinely used Eppendorf centrifuge "in use by trained professionals in research, routine and training laboratory work in biosciences, medicine, clinical diagnostics industry and the chemical field" has a range of speeds from 125G to 17,000G. This range of 125G to 17,000G centrifugal acceleration substantially overlaps the range given in claim 1. See Eppendorf, pages 5 and p 18.

Claims 1 requires limitations of centrifugation which has the property of being various rates of centrifugal acceleration 1000G to 250,000G. Hansen is silent on centrifugation conditions, other than that an Eppendorf centrifuge is used. The Examiner is unable to determine whether the prior art disclosure possesses the unrecited characteristics or property. With these conditions, where the method seems to be identical except that the prior art is silent to the characteristic or property claimed, then the burden shifts to Applicant to provide evidence that the prior art would neither anticipate nor render obvious the claimed invention. See *In re Best* 195 USPQ 430, 433 (CCPA 1977).

Applicant's arguments, that the prior art does not teach or suggest a higher centrifugation speed, and that it is well known in the maize type I callus or immature embryos are not centrifuged, are not persuasive. The claims are not limited to maize tissue or immature embryos. Hansen does teach heat-shocking and rotary movement of maize tissues, so that increasing the speed of movement appear to be the optimization of process parameters.

It is also noted that Applicant's evidence of unexpected results relies upon the centrifugation of immature embryos of rice or corn, at particular temperatures and for particular durations, and at particular centrifugation speeds. In contrast, the claims are not limited to a particular plant species or tissue type, and the claims are drawn to extremely wide temperature ranges, pre-culture durations, and centrifugation speed ranges.

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See In re Lindner, 173 USPQ 356 (CCPA 1972) and In re Grasselli, 218USPQ 769 (Fed. Cir. 1983) which teach that the evidence of nonobviousness should be commensurate with the scope of the claims.

Accordingly Hansen anticipates and/or makes prima facie obvious, the claimed invention.

REMARKS

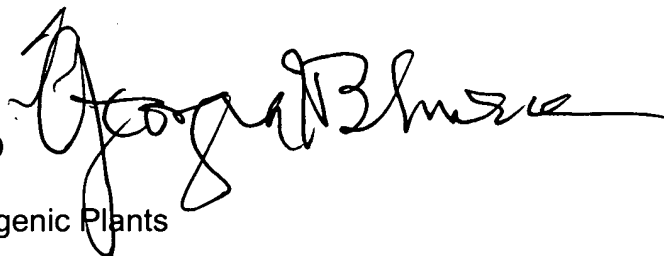
6. No claims are allowed given the success and suggestions of Hansen.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Georgia L. Helmer whose telephone number is 571-272-0796. The examiner can normally be reached on M-Th, 10:30am-6:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anne Marie Grunberg can be reached on 571-272-0975. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Georgia Helmer PhD
Patent Examiner
Art Unit 1638, Transgenic Plants
15 April 2007

A handwritten signature in black ink, appearing to read "Georgia Helmer", is written over the printed name and title of the examiner.